IN THE CLAIMS

Please amend claims 36 and 46, as shown below. Please cancel claims 20-35 and 37, without prejudice. Claims 1-19 were previously canceled. The following listing of claims replaces all prior listings.

1-35. (Canceled).

36. (Currently amended) ~~The~~ A method ~~of claim 26~~[[,]] of detecting and characterizing a target biomolecule in a sample comprising:

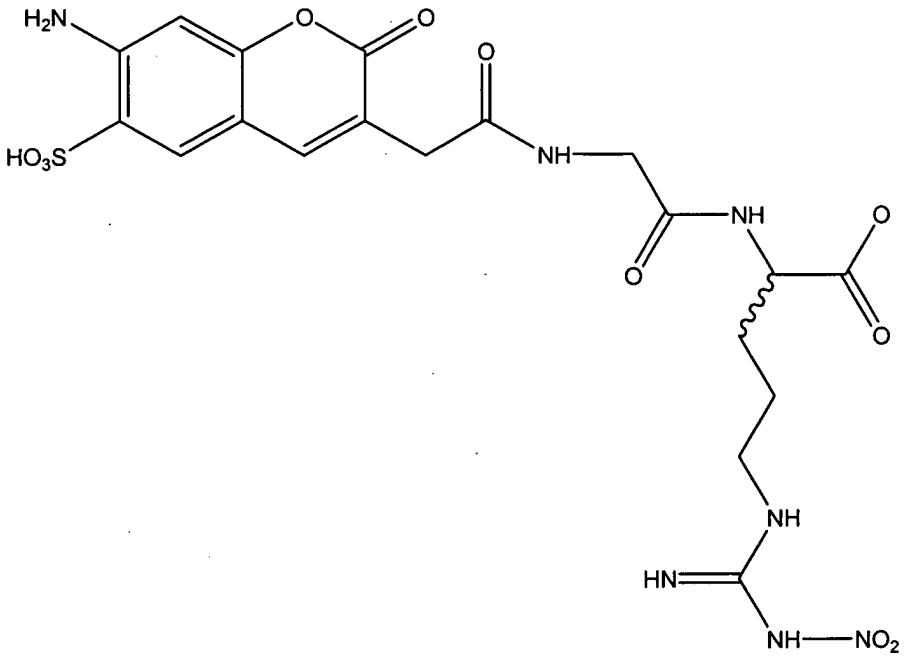
(a) forming a complex comprising a target biomolecule and a substrate molecule, the substrate molecule including a substrate linked to a sensitizer, the substrate molecule being capable of recognizing the target biomolecule, by contacting the target biomolecule with the substrate molecule;

(b) irradiating the complex to cause an emission signal from the sensitizer;

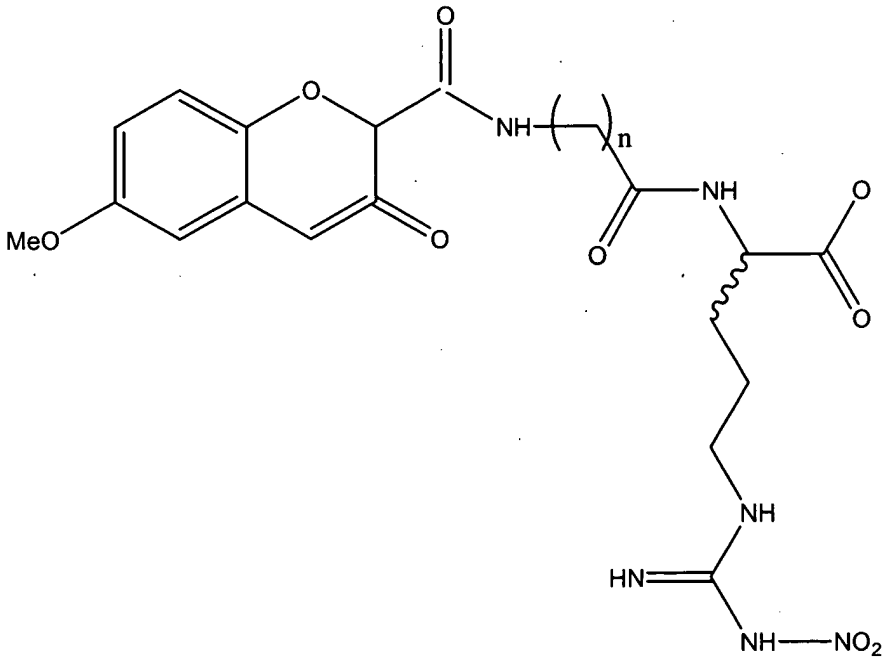
(c) determining the presence of the complex by the signal emitted by the sensitizer to detect the target biomolecule; and

(d) characterizing the target biomolecule by optically analyzing the same to determine the structural properties thereof, wherein said sensitizer is a photosensitizer, and

wherein said sensitizer-linked substrate molecule is selected from the group consisting of compounds shown by structures (III) and (IV):



(III)



(IV)

37. (Canceled)

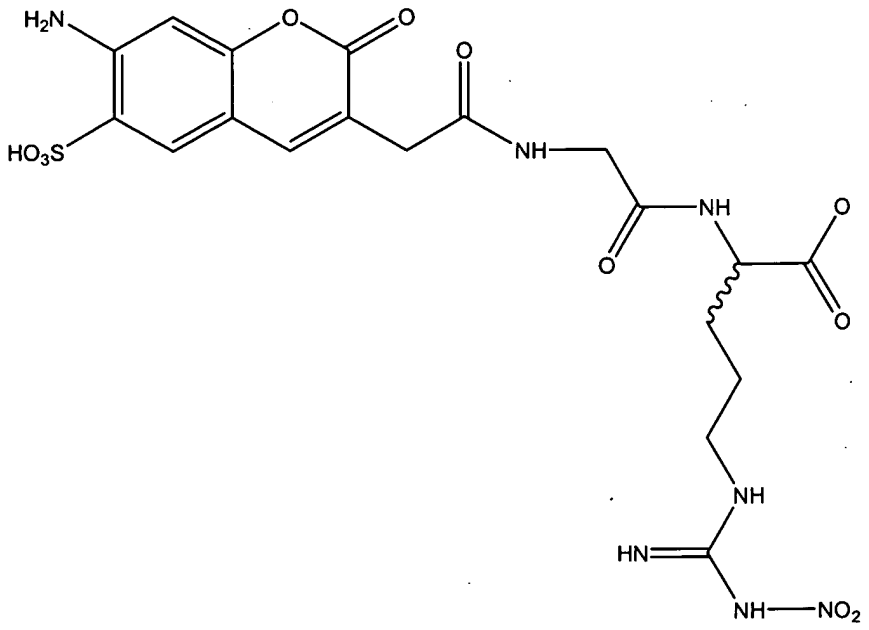
38. (Previously presented) A method of detecting a target biomolecule in a sample comprising:

(a) forming a complex comprising a target biomolecule and a substrate molecule, the substrate molecule including a substrate linked to a sensitizer, the substrate molecule being capable of recognizing the target biomolecule, by contacting the target biomolecule with the substrate molecule;

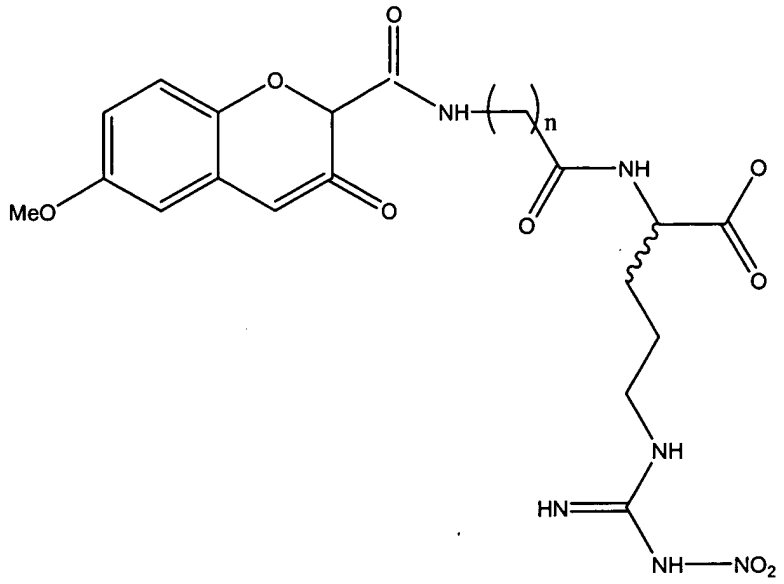
(b) irradiating the complex to cause an emission signal from the sensitizer; and

(c) determining the presence of the complex by the signal emitted by the sensitizer to detect the target biomolecule,

wherein said sensitizer is a photosensitizer and said sensitizer-linked substrate molecule is selected from the group consisting of compounds shown by structures (III) and (IV):



(III)



(IV)

39. (Previously presented) The method of claim 38, wherein said substrate is a binding element of the substrate molecule.

40. (Previously presented) The method of claim 38, wherein said sensitizer is located at or near the surface of the target biomolecule when the substrate of the substrate molecule is bound to the target biomolecule.

41. (Previously presented) The method of claim 38, wherein said biomolecule is a metalloprotein.

42. (Previously presented) The method of claim 41, wherein said metalloprotein is a heme protein.

43. (Previously presented) The method of claim 41, wherein said biomolecule is cytochrome P450.

44. (Previously presented) The method of claim 38, wherein said linker is a molecule of sufficient length to allow the substrate to bind to the active site of the

biomolecule so that upon binding the sensitizer is located at or near the surface of the target biomolecule.

45. (Previously presented) The method of claim 38, wherein said linker is an alkyl chain, $(CH_2)_n$, wherein n = 1-13.

46. (Currently amended) The method of claim ~~20~~ 38, wherein said substrate is a molecule that binds to the active site of cytochrome P450.

47. (Previously presented) The method of claim 46, wherein the said substrate is selected from the group consisting of adamantane, ethylbenzene, and imidazole.